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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,307	11/22/2004	Pieter Hendrik Pouwels	117-509	9841

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EXAMINER
TONGUE, LAKIA J

ART UNIT	PAPER NUMBER
1645	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/500,307	POUWELS ET AL.	
	Examiner	Art Unit	
	LAKIA J. TONGUE	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-32 and 34-40* is/are pending in the application.

4a) Of the above claim(s) *9-32 and 35-39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8,34 and 40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11-15-2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 26, 2008 has been entered.

Applicant's response filed on August 26, 2008 is acknowledged. Claims 1-6, 8-32 and 34-40 are pending. Claims 1, 3, 4-6 and 34 have been amended. Claim 40 has been added. Claims 7 and 33 have been canceled. Claims 1-6, 8, 34 and 40 are currently under consideration.

Information Disclosure Statement

1. Applicant has requested that the Examiner return an initialed copy of the PTO 1449 Form filed November 15, 2007, pursuant to MPEP §609. The Examiner has reviewed and considered said 1449 Form on February 7, 2008. As of February 7, 2008 the Form has been considered and made part of the record.

With regard to the 1449 Form indexed on June 15, 2007, the Examiner has reconsidered the form to include consideration of WO 98/33386A. An initialed copy is attached hereto.

Rejections Withdrawn

2. In view of Applicant's cancellation of claim 7, the rejection of claim 7 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention is withdrawn.

Rejections Maintained

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. The rejection of claims 1-6, 8, 34 and newly added claim 40 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement in the rejection of claims 1-8, 33 and 34 is maintained for the reasons set forth in the previous office action. The cancellation of claims 7 and 33 renders the rejection of said claim moot.

Applicant argues that:

1) Claim 1 refers to the unmodified protein being from *Lactobacillus*, having a size range of from 40 to 70 kd, that the protein is highly basic with a pI of at least 9, as well as particular regions where an insertion has been shown not to eliminate the ability to crystallize.

2) One of ordinary skill in the art will appreciate that the *Lactobacillus* surface layer proteins are a tightly related group of proteins which would be expected to behave in a similar behavior.

3) The ability to crystallize, as specified by the claims, refers to the ability of the monomeric modified S-proteins to spontaneously form a two-dimensional crystalline monolayer that, under natural circumstances, comprises the surface layer that envelopes the entire bacterial cell.

4) Figure 1 shows that there is more than 20% amino acid identity and over 60% amino acid similarity between the proteins.

5) Figure 3 shows a comparison of the secondary structure of representative examples of *Lactobacillus* S proteins from four different species and shows that the four have an almost identical secondary structure.

6) Claim 1 recites that the unmodified protein is from *Lactobacillus* bacterium and also specifies that the insertion is in one of the specific regions demonstrated in the Example to not prevent crystallization.

Applicant's arguments have been fully considered and deemed non-persuasive.

The claimed invention is directed to a modified bacterial surface layer (S-layer) protein, the modification comprising the internal insertion of a heterologous polypeptide, wherein said modified protein is :

a) able to crystallize to form a crystalline monolayer;

b) from a *Lactobacillus* bacterium;

c) from 40 to 70 kd in size; and

d) highly basic with a pI of at least 9,

where the insertion site of said heterologous polypeptide is:

i) at a position from amino acids 1 to 20;

ii) at a position from amino acids 35 to 55;

iii) at a position from amino acids 100 to 130;

iv) at a position from amino acids 110 to 140;

v) at a position of amino acids 193; and/or

vi) at a position from amino acids 340 to 360;

With regard to Points 1, 2 and 4-6, while claim 1 has been amended to clarify a specific weight range, pI and particular regions where insertion can occur, there is no base line sequence recited in claim 1. The baseline sequence for the surface layer protein is critical and essential to the practice of the invention, but has not been included in the claim(s) and is not enabled by the disclosure. See In re Mayhew, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Without a baseline sequence one of skill in the art would not be able to identify which polypeptide will encode a S-protein having the ability to crystallize and form a crystalline monolayer, where the insertion site of the heterologous polypeptide is i) at a position from amino acids 1 to 20; ii) at a position from amino acids 35 to 55; iii) at a position from amino acids 100 to 130; iv) at a position from amino acids 110 to 140; v) at a position of amino acids 193; and/or vi) at a position from amino acids 340 to 360 as recited in the rejected claims. The skilled artisan cannot envision the detailed chemical structure of the encompassed proteins, regardless of the complexity or simplicity of the method of isolation.

Moreover, with regard to Points 2, 4 and 5 a difference in a single amino acid can alter the function of a given protein. Bowie et al. (Science, 1990, 257:1306-1310) teach that an amino acid sequence encodes a message that determines the shape and function of a protein and that it is the ability of these proteins to fold into unique three-dimensional structures that allows them to function, carry out the instructions of the genome. Bowie et al. further teach that the problem of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex (column 1, page 1306). Bowie et al. further teach that while it is known that many amino acid substitutions are possible in any given protein, the position within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of maintaining function are limited. Certain positions in the sequence are critical to the three dimensional structure/function relationship and these regions can tolerate only conservative substitutions or no substitutions (column 2, page 1306). Accordingly, it follows that the functional domains associated with a given function can only be identified empirically. This constitutes undue experimentation. Therefore, given the lack of success in the art, the lack of working examples commensurate in scope to the claimed invention and the unpredictability of the generation of protective immunity, the specification, as filed, does not provide enablement for immunogenic compositions capable of adjuvanting a specific immune response.

With regard to Point 3, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon

which applicant relies (i.e., The ability to crystallize refers to the ability of the monomeric modified S-proteins to spontaneously form a two-dimensional crystalline monolayer that, under natural circumstances, comprises the surface layer that envelopes the entire bacterial cell) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Moreover, the declaration submitted by Professor Pouwels has been considered but is not deemed persuasive. The claims are broadly drawn and the data disclosed in the Declaration is not commensurate in scope with the claimed invention.

As previously presented, *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970) states, "The amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art." "The "amount of guidance or direction" refers to that information in the application, as originally filed, that teaches exactly how to make or use the invention. The more that is known in the prior art about the nature of the invention, how to make, and how to use the invention, and the more predictable the art is, the less information needs to be explicitly stated in the specification. In contrast, if little is known in the prior art about the nature of the invention and the art is unpredictable, the specification would need more detail as to how to make and use the invention in order to be enabling" (MPEP 2164.03). The MPEP further states that physiological activity can be considered inherently unpredictable. Thus, Applicant

assumes a certain burden in establishing that inventions involving physiological activity are enabled.

Factors to be considered in determining whether a disclosure would require undue experimentation have been reiterated by the Court of Appeals in In re Wands, 8 USPQ2d 1400 at 1404 (CRFC1988). The Wands factors have been considered in the establishment of this scope of enablement rejection. These factors include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art and (8) the breadth of the claims.

All of the Wands factors have been considered with regard to the instant claims, with the most relevant factors discussed below.

Nature of the invention: The instant claims are drawn to a modified bacterial surface layer (S-layer) protein, the modification comprising the internal insertion of a heterologous polypeptide, wherein said modified protein is :

a) able to crystallize to form a crystalline monolayer;

b) from a *Lactobacillus* bacterium;

c) from 40 to 70 kd in size; and

d) highly basic with a pI of at least 9,

where the insertion site of said heterologous polypeptide is:

i) at a position from amino acids 1 to 20;

ii) at a position from amino acids 35 to 55;

iii) at a position from amino acids 100 to 130;

iv) at a position from amino acids 110 to 140;

v) at a position of amino acids 193; and/or

vi) at a position from amino acids 340 to 360;

Breadth of the claims: The claims encompass any and all bacterial surface layer proteins, comprising any internal insertion of any heterologous polypeptide, wherein said modified protein is able to crystallize.

Direction or guidance presented in the specification: The specification does not provide substantive evidence that the claimed composition is capable of crystallizing. The specification is silent with regard to which bacterial surface layer protein will crystallize when the modification comprises any internal insertion of a heterologous polypeptide. The specification lacks adequate guidance/direction to enable a skilled artisan to practice the claimed invention commensurate in scope with the claims. The amino acid sequence of a protein determines its structural and functional properties, predictability of which internal insertion will result in certain activity, which is very complex, is well outside the realm of routine experimentation. Accurate predictions of a protein's function from mere sequence data are limited, therefore, the general knowledge and skill in the art is not sufficient, and thus the specification needs to provide an enabling disclosure.

Moreover, there is no base line sequence recited in claim 1. The baseline sequence for the surface layer protein is critical and essential to the practice of the invention, but has not been included in the claim(s) and is not enabled by the

disclosure. See In re Mayhew, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Without a baseline sequence one of skill in the art would not be able to identify which polypeptide will encode a S-protein having the ability to crystallize and form a crystalline monolayer, where the insertion site of the heterologous polypeptide is i) at a position from amino acids 1 to 20; ii) at a position from amino acids 35 to 55; iii) at a position from amino acids 100 to 130; iv) at a position from amino acids 110 to 140; v) at a position of amino acids 193; and/or vi) at a position from amino acids 340 to 360 as recited in the rejected claims. The skilled artisan cannot envision the detailed chemical structure of the encompassed proteins, regardless of the complexity or simplicity of the method of isolation.

Lastly, Applicant has failed to "fully characterize" the polypeptide that are capable of crystallizing when any internal insertion of any heterologous polypeptide is made. The specification does not describe with any degree of specificity which bacterial surface layer protein is to be used or at what point the internal insertion of a heterologous polypeptide is to be made, such that the specification might reasonably convey to the skilled artisan that Applicant had possession of the claimed invention at the time the application was filed.

Presence or absence of working examples: There are no working examples, provided to rectify the missing information in the instant specification pertaining to the claimed variant.

State of the prior art: Protein chemistry is probably one of the most unpredictable areas of biotechnology. Consequently, the effects of sequence

dissimilarities upon protein structure and function cannot be predicted. Bowie et al. (Science, 1990, 257:1306-1310) teach that an amino acid sequence encodes a message that determines the shape and function of a protein and that it is the ability of these proteins to fold into unique three-dimensional structures that allows them to function, carry out the instructions of the genome. Bowie et al. further teach that the problem of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex (column 1, page 1306). Bowie et al. further teach that while it is known that many amino acid substitutions are possible in any given protein, the position within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of maintaining function are limited. Certain positions in the sequence are critical to the three dimensional structure/function relationship and these regions can tolerate only conservative substitutions or no substitutions (column 2, page 1306). Accordingly, it follows that the functional domains associated with a given function can only be identified empirically. This constitutes undue experimentation. Therefore, given the lack of success in the art, the lack of working examples commensurate in scope to the claimed invention and the unpredictability of the generation of protective immunity, the specification, as filed, does not provide enablement for immunogenic compositions capable of adjuvanting a specific immune response.

Quantity of experimentation necessary: The quantity of experimentation necessary would be undue as no relevant evidence has been made of record establishing the amount of experimentation necessary. Reasonable correlation must

exist between the scope of the claims and scope of enablement set forth, and it cannot be predicted from the disclosure how to make/use the claimed genus. In view of the above, one of skill in the art would be forced into undue experimentation to practice the claimed invention.

Thus, for all these reasons, the specification is not considered to be enabling for one skilled in the art to make and use the claimed invention as the amount of experimentation required is undue, due to the broad scope of the claims, the lack of guidance and working examples provided in the specification and the high degree of unpredictability as evidence by the state of the prior art, attempting the construct and test variants of the claimed invention would constitute undue experimentation.

4. The rejection of claims 1-6, 8, 34 and newly added claim 40 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement in the rejection of claims 1-8, 33 and 34 is maintained for the reasons set forth in the previous office action. The cancellation of claims 7 and 33 renders the rejection of said claims moot.

Applicant argues that:

1) The claims specify both that the protein is from a *Lactobacillus* bacterium and also refer to the specific regions where insertions have been demonstrated not to eliminate crystallization in the Example of the present invention.

2) One of ordinary skill will appreciate that the Applicants were in possession of the claimed invention at the time the application was filed.

3) S proteins from *Lactobacillus* bacteria represent a tightly defined group of proteins. The specific modified S proteins described in the specification do therefore provide a representative and adequate illustration of the invention. Furthermore, the specification describes the necessary tests to show that a given modified *Lactobacillus* S protein can form a crystalline mono- layer as specified by the claims as also discussed above.

Applicant's arguments have been fully considered and deemed non-persuasive.

The claimed invention is directed to a modified bacterial surface layer (S-layer) protein, the modification comprising the internal insertion of a heterologous polypeptide, wherein said modified protein is :

a) able to crystallize to form a crystalline monolayer;

b) from a *Lactobacillus* bacterium;

c) from 40 to 70 kd in size; and

d) highly basic with a pl of at least 9,

where the insertion site of said heterologous polypeptide is:

i) at a position from amino acids 1 to 20;

ii) at a position from amino acids 35 to 55;

iii) at a position from amino acids 100 to 130;

iv) at a position from amino acids 110 to 140;

v) at a position of amino acids 193; and/or

vi) at a position from amino acids 340 to 360;

With regard to Points 1 and 2, although the claims specify both that the protein is from a *Lactobacillus* bacterium and refer to specific regions where insertions can take place, there is no base line sequence recited in claim 1. The baseline sequence for the surface layer protein is critical and essential to the practice of the invention, but has not been included in the claim(s) and is not enabled by the disclosure. See In re Mayhew, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Without a baseline sequence one of skill in the art would not be able to identify which polypeptide will encode a S-protein having the ability to crystallize and form a crystalline monolayer, where the insertion site of the heterologous polypeptide is i) at a position from amino acids 1 to 20; ii) at a position from amino acids 35 to 55; iii) at a position from amino acids 100 to 130; iv) at a position from amino acids 110 to 140; v) at a position of amino acids 193; and/or vi) at a position from amino acids 340 to 360 as recited in the rejected claims. The skilled artisan cannot envision the detailed chemical structure of the encompassed proteins, regardless of the complexity or simplicity of the method of isolation.

Moreover, with regard to Points 2, 4 and 5 a difference in a single amino acid can alter the function of a given protein. Bowie et al. (Science, 1990, 257:1306-1310) teach that an amino acid sequence encodes a message that determines the shape and function of a protein and that it is the ability of these proteins to fold into unique three-dimensional structures that allows them to function, carry out the instructions of the genome. Bowie et al. further teach that the problem of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex (column 1, page 1306). Bowie et

al. further teach that while it is known that many amino acid substitutions are possible in any given protein, the position within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of maintaining function are limited. Certain positions in the sequence are critical to the three dimensional structure/function relationship and these regions can tolerate only conservative substitutions or no substitutions (column 2, page 1306). Accordingly, it follows that the functional domains associated with a given function can only be identified empirically. This constitutes undue experimentation. Therefore, given the lack of success in the art, the lack of working examples commensurate in scope to the claimed invention and the unpredictability of the generation of protective immunity, the specification, as filed, does not provide enablement for immunogenic compositions capable of adjuvanting a specific immune response.

With regard to Point 3, while the Example may show insertion of a heterologous peptide in five different locations that retain the ability to form a two-dimensional crystalline structure the fact still remains that the claims are broadly drawn and encompass more than the 5 insertion locations as described in the specification. As it stands the claims are drawn to an undetermined number of insertion locations, which have not been described nor has it been shown that any and all insertions will result in a protein that is able to crystallize to form a crystalline monolayer.

Moreover, protein chemistry is probably one of the most unpredictable areas of biotechnology. Consequently, the effects of sequence dissimilarities upon protein structure and function cannot be predicted. Bowie et al. (Science, 1990, 257:1306-1310)

teach that an amino acid sequence encodes a message that determines the shape and function of a protein and that it is the ability of these proteins to fold into unique three-dimensional structures that allows them to function, carry out the instructions of the genome. Bowie et al. further teach that the problem of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex (column 1, page 1306). Bowie et al. further teach that while it is known that many amino acid substitutions are possible in any given protein, the position within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of maintaining function are limited. Certain positions in the sequence are critical to the three dimensional structure/function relationship and these regions can tolerate only conservative substitutions or no substitutions (column 2, page 1306). Accordingly, it follows that the functional domains associated with a given function can only be identified empirically. This constitutes undue experimentation. Therefore, given the lack of success in the art, the lack of working examples commensurate in scope to the claimed invention and the unpredictability of the generation of protective immunity, the specification, as filed, does not provide enablement for immunogenic compositions capable of adjuvanting a specific immune response.

As previously presented, to fulfill the written description requirements set forth under 35 USC § 112, first paragraph, the specification must describe at least a substantial number of the members of the claimed genus of polypeptides or alternatively describe a representative member of the claimed genus, which shares a particularly

defining feature common to at least a substantial number of the members of the claimed genus, which would enable the skilled artisan to immediately recognize and distinguish its members from others, so as to reasonably convey to the skilled artisan that Applicant has possession of the claimed invention. In the instant case, to fulfill the written description requirement, a representative number of S-proteins with inserted heterologous proteins that can still crystallize need to be described. Specifically, the specification needs to provide guidance as to which heterologous peptides/proteins can be inserted at a given position within a given S-protein and not affect crystallization.

A representative number of species means that the species that are adequately described are representative of the entire genus. The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, disclosure of drawings, or by disclosure of relevant identifying characteristics, for example, structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the Applicant was in possession of the claimed genus.

Moreover, the skilled artisan cannot envision the detailed chemical structure of the claimed polypeptides. The claims encompass a genus of polypeptides which are not adequately described. The recitation of any modified bacterial surface layer protein (indicating any protein) comprising the internal insertion, which is non-specific, represents a partial structure and the genus as claimed is highly variable. The

specification fails to provide any additional representative species of the claimed genus to show that Applicant was in possession of the claimed genus. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential ability to bind a specific biological agent. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc. V. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016. In Fiddes v. Baird, 30 USPQ2d 1481, 1483, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence.

The University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404. 1405 held that: ...To fulfill the written description requirement, a patent specification must describe an invention and does so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." Lockwood v. American Airlines Inc. , 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); In re Gosteli , 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (" [T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an Applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d at 1572, 41 USPQ2datl966.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 40 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a New Matter rejection.

Applicant has added claim 40, which recites in part, "at a position from amino acids 290 to 410". This phrase does not appear in the specification, or original claims as filed. Applicant points to page 7, lines 20 to 23 of the specification for support. However, cited portion of the specification does not provide support for the recited range of residues.

To overcome this rejection Applicant must specifically point out the support for this limitation or cancel the new matter from the claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-6, 8, 34 and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 40 are rendered vague and indefinite by the use of the phrase "at a position from amino acids x to y". It is unclear what is meant by said phrase, since no baseline sequence is recited. As written, it is impossible to determine the metes and bounds of the claimed invention.

Claim 40 is rendered vague and indefinite by the use of the phrase "at a position from amino acids from amino acids 290 to 410". It is unclear what is meant by said phrase, since no baseline sequence is recited. As written, it is impossible to determine the metes and bounds of the claimed invention.

Conclusion

7. No claim is allowed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAKIA J. TONGUE whose telephone number is (571)272-2921. The examiner can normally be reached on Monday-Friday 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Mondesi can be reached on 571-272-0956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LJT
9/28/08

/Robert A. Zeman/

for Lakia J. Tongue, Examiner of Art Unit 1645